

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	Delta States
State	Louisiana
Discipline Group	Agricultural Engineering
Practice Code/Name	374 - Farmstead Energy Improvement
Scenario ID	8
Scenario Name	Variable Speed Drive > 5 HP
Scenario Description	The typical scenario consists of a variable speed drive (VSD) and appurtenances, such as hook-ups, control panels, wiring, control blocks, filters, switches, pads, etc. attached to an electric motor used to drive a ventilation fan, irrigation pumps, vacuum pump, or similar equipment involved with agricultural production. The motor size, on which the VSD is added, is larger than 5 HP.
Before Practice Situation	The system is inefficient when a motor operates at constant speed to satisfy a load which varies as to flow rate and/or pressure requirements.
After Practice Situation	An on-farm energy audit has determined that energy use can be reduced through use of a VSD to control electric motors. After the VSD is applied, the motor speed can be adjusted to reduce power requirements and better match varied flow or pressure requirements. Associated practices/activities: may include 122-AgEMP - HQ, and other activities within 374-Farmstead Energy Improvement. The resource concern is inefficient use of energy in the farm operation which increases dependence on non-renewable energy sources and can be addressed through improved energy efficiency. Any improvements are based on a Type 2 energy audit meeting the requirements of ASABE S612.
Scenario Feature Measure	Horse Power
Scenario Unit	Horse Power
Scenario Typical Size	50

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$6,316.25	\$126.33
Equipment/Installation	\$0.00	\$0.00
Labor	\$429.12	\$8.58
Mobilization	\$25.75	\$0.52
Acquisition of Technical Knowledge	\$0.00	\$0.00
Foregone Income	\$0.00	\$0.00
Total	\$6,771.12	\$135.42

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials	1287	Variable Speed Drive, 10 HP	Variable speed drive for 10 Horsepower electric motor. Does not include motor. Materials only.	Horsepower	\$150.00	12.5	\$1,875.00
Materials	1288	Variable Speed Drive, 50 HP	Variable speed drive for 50 Horsepower electric motor. Does not include motor. Materials only.	Horsepower	\$146.80	12.5	\$1,835.00
Materials	1289	Variable Speed Drive, 100 HP	Variable speed drive for 100 Horsepower electric motor. Does not include motor. Materials only.	Horsepower	\$101.00	12.5	\$1,262.50
Materials	1290	Variable Speed Drive, 200 HP	Variable speed drive for 200 Horsepower electric motor. Does not include motor. Materials only.	Horsepower	\$107.50	12.5	\$1,343.75
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$26.82	16	\$429.12
Mobilization	1141	Mobilization, Skilled labor	Mobilization of skilled labor: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$25.75	1	\$25.75